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SELF-RESTRAINT AS POSITIVE REINFORCEMENT FOR SELF-INJURIOUS BEHAVIOR

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Many individuals who engage in self-injurious behavior (SIB) also exhibit self-restraint. We compared rates of SIB exhibited by a 32-year-old woman diagnosed with profound retardation across conditions in which access to restraint was (a) continuously available, (b) presented as a consequence for SIB, or (c) unavailable. Rates of SIB increased when access to restraint was contingent upon SIB and decreased when restraint was unavailable, suggesting that self-restraint functioned as positive reinforcement for SIB.

DESCRIPTORS: self-injurious behavior, restraint, self-restraint

Many individuals who exhibit self-injurious behavior (SIB) also show a related behavior known as self-restraint. Defined as "self-initiated confinement incompatible with SIB or preference for such confinement" (Iwata, Zarcone, Vollmer, & Smith, 1994, p. 144), self-restraint interferes with the acquisition and performance of adaptive behavior and eventually can produce muscular atrophy and related physical problems.

The relationship between SIB and self-restraint is a complex one and may involve a variety of operant mechanisms (Smith, Iwata, Vollmer, & Pace, 1992). For example, self-restraint can be maintained by escape from the aversive properties of SIB (Fisher, Grace, & Murphy, 1996) or by contingencies similar to those maintaining SIB (Derby, Fisher, & Piazza, 1996). In the present study, we examined the possibility that the opportunity to self-restrain might serve as positive reinforcement for SIB. We have observed that caregivers, in an attempt to terminate SIB, sometimes allow and even encourage self-restraint when SIB occurs. Because restraint is often paired with either attention (e.g., prompting self-restraint or applying protective devices) or escape (e.g., from ongoing activities), restraint may acquire reinforcing properties per se, and access to it might thus maintain occurrences of SIB.

METHOD

Polly was a 32-year-old woman with profound retardation and blindness caused by chronic eye poking (which had ceased prior to the current study). Topographies of SIB observed during this study included head hitting (contact of palm or fist against head) and hair pulling (grasping hair between fingers and pulling away from the head). Her self-restraint consisted of entangling her hands and arms in articles of clothing (placement of any part of her hand beneath clothing articles).

Sessions were conducted two to four times

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per day, 4 days per week, at a day-treatment program located on the grounds of the residential facility where Polly lived. Sessions lasted for 5 min (except as noted below) and were apportioned into successive 10-s intervals for computation of interobserver agreement scores. A second observer scored 28% of sessions. Interobserver agreement, based on an interval-by-interval comparison of observers' records, was 100% for SIB.

Prior to the study, we conducted a functional analysis of Polly's SIB using methods described by Iwata, Dorsey, Slifer, Bauman, and Richman (1982/1994). Results showed that Polly exhibited self-restraint during all assessment conditions, and that she exhibited SIB only when she was required to perform tasks that were incompatible with self-restraint. These data suggested that withdrawal of the opportunity to engage in self-restraint may have occasioned SIB that was maintained by re-presentation of access to self-restraint, and were consistent with reports from staff at Polly's work site, who indicated that they allowed her to self-restrain when she began to exhibit severe SIB. Based on these results, a series of conditions was arranged in an ABCBC design to determine whether self-restraint served as positive reinforcement for SIB. During noncontingent restraint, no one interacted with Polly, and she was permitted to self-restrain continuously. During contingent restraint, the experimenter guided Polly's arms out of restraint at the beginning of each session and subsequently blocked further attempts to self-restrain. Contingent on each occurrence of SIB, the experimenter permitted Polly to self-restrain for 1 min, during which the session clock was stopped (so that time in restraint would not artificially reduce SIB due to its unavailability). The session ended when 5 min elapsed on the session clock or after 30 min of real time, whichever came first. During no restraint, the experimenter guided Polly's arms out of restraint at the beginning of each session, blocked all subsequent attempts to self-restrain, and ignored SIB.

RESULTS AND DISCUSSION

Figure 1 shows rates of Polly's SIB under the three conditions. When access to restraint was continuous (noncontingent restraint), SIB never occurred, and self-restraint occurred continuously. Both contingent restraint conditions were associated with increases in SIB. Four of the contingent restraint sessions were terminated after 30 min (Sessions 12, 18, 19, 20). The no-restraint conditions produced dramatic decreases in SIB.

Results of this study suggest that Polly's SIB was maintained, at least in part, by the opportunity to self-restrain. Three outcomes support this interpretation. First, when restraint was permitted to occur, Polly self-restrained continuously and did not engage in SIB. This arrangement seemed to represent a noncontingent reinforcement schedule, in which the establishing operation for SIB (deprivation from self-restraint) was eliminated through continuous access to reinforcement. Second, when self-restraint was permitted contingent upon the occurrence of SIB, SIB increased, showing a typical reinforcement function. Third, SIB was virtually eliminated when it did not produce the opportunity to self-restrain, consistent with extinction of operant behavior. Because Polly's SIB during assessment occurred only during the demand condition, an alternative explanation for the present results is that both SIB and self-restraint were maintained by negative reinforcement. This account, however, does not explain the continued maintenance of self-restraint when Polly was alone.

The mechanisms by which the reinforcing properties of self-restraint were acquired by Polly remain unclear. However, knowledge

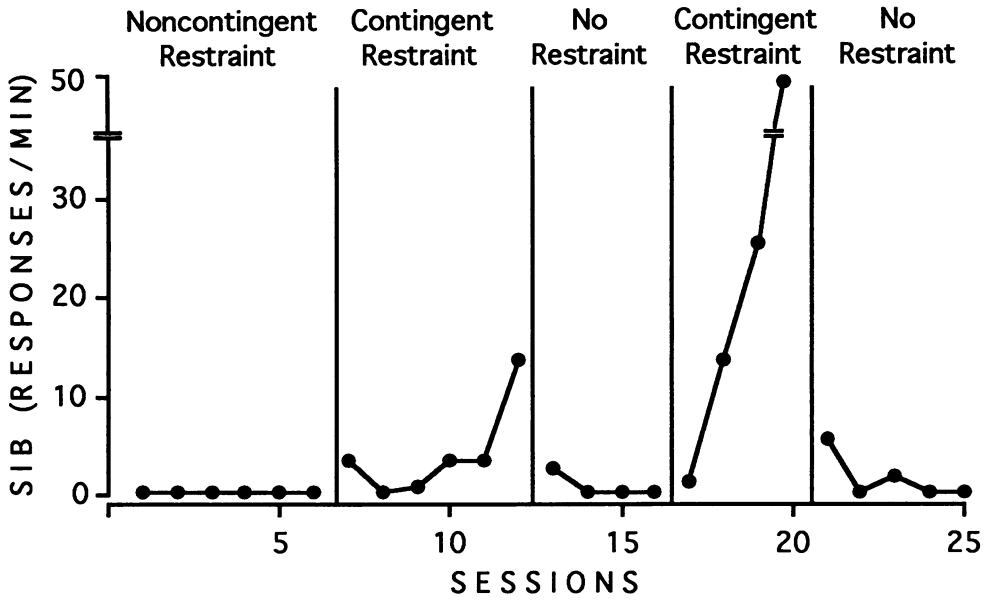

Figure 1. Rate of Polly's self-injury across conditions.

that the opportunity to restrain can reinforce SIB may rule out some hypotheses about the contingencies that maintain self-restraint. For example, it is unlikely that the functional properties of Polly's self-restraint included both the maintenance of SIB and its termination. That is, because self-restraint functioned as positive reinforcement for SIB, it is unlikely that the termination of SIB functioned as negative reinforcement for self-restraint. Thus, when self-restraint is shown to reinforce SIB, other maintaining variables for self-restraint may be more likely, such as avoidance of habilitative training or attention from caregivers.

Evidence that self-restraint serves as reinforcement for SIB may also be useful in developing treatments for SIB. Contingent restraint, for example, would be an inappropriate treatment choice. Instead, noncontingent access to restraint would not increase occurrences of SIB and would be preferred over further tissue damage produced by unabated and severe SIB. Eventually, restraint might be reduced through the use of a fading procedure. Finally, extinction of SIB maintained by opportunities to restrain may be a treatment option for less severe cases of SIB.

Results of the present study extend research on the relationship between SIB and self-restraint, suggest that contingent restraint may be contraindicated in some cases, and emphasize the importance of identifying the functional properties of both SIB and self-restraint prior to implementing treatment for these behavior disorders.

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